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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,684	11/08/2002	Jean-Pierre Delhomme	21.0910	2320

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SCHLUMBERGER OILFIELD SERVICES
200 GILLINGHAM LANE
MD 200-9
SUGAR LAND, TX 77478

EXAMINER

SHARON, AYAL I

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,684

Applicant(s)

DELHOMME ET AL.

Examiner

Ayal I. Sharon

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/11/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. Claims 1-15 of U.S. Application 10/065,684, originally filed on 11/08/2002, have been presented for examination. The application claims foreign priority to French application 0114447, filed on 11/08/2001.

Oath/Declaration

2. Examiner has located the following relevant published article that was co-authored by one of the inventors of the instant application. The article is:
 - Akbar, M. et al. "Classic Interpretation Problems: Evaluating Carbonates". Oilfield Review. Jan. 1995. pp.38-57.
3. Applicants are reminded of their declaration, which acknowledges the duty to disclose to the Office all information known to the persons to be material to patentability as defined in 37 CFR 1.56.

Drawings

4. Figs. 2 to 6B contain handwritten material. This application has been filed with informal drawings that are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. The prior art used for these rejections is as follows:

- Cope. G. "Improving Efficiency Through Reservoir Modelling and Production Simulation." Journal of Canadian Petroleum Technology. Apr. 2001. Vol.40, No.4. pp.7-11. ("Cope").
- U.S. PG-PUB 2002/0013687 to Ortoleva. ("Ortoleva").

8. The claim rejections are hereby summarized for Applicant's convenience. The detailed rejections follow.

9. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cope in view of Ortoleva.

10. In regards to Claim 1, Cope expressly teaches the use of both static and dynamic models of reservoir simulation (see p.7, col.2, para.3). Cope expressly teaches that a dynamic model can be used to "create a time-animation of oil saturation." (see p.9, col.2, para.2). Cope also teaches that "[b]y integrating all the software and databases, the groundwork is laid to allow the static and dynamic models to exist together in a continuum." (See p.9, col.2, last paragraph).

On the other hand, Cope does not expressly teach the comparison of the simulated and measured saturations, as claimed in the following limitations:

- 1. A process for determining, for a reservoir containing fluids (W, O), the variation in the relative permeability (kr_O , kr_W) of at least one of the fluids in the reservoir, as a function of the saturation of at least one of the fluid (W, O), the method comprising:
 - (a) determining, for one of the fluids of the reservoir, a saturation distribution on the basis of a measurement (SDM) of a physical property in the reservoir;
 - (b) creating a dynamic model for the flow of fluids in the reservoir;
 - (c) generating a simulated saturation distribution (SSD) by the dynamic model;
 - (d) comparing the SSD with the (SDM);
 - (e) if SSD and SDM do not substantially coincide, updating the dynamic model with intermediate relative permeability values (kr_O)_i , and (kr_W)_i and repeating steps b and c.*

Ortoleva, on the other hand, does expressly teach this claimed comparison of measured and simulated data (see Figs. 46 and 47, and para. [0345]), of permeability (see Fig.29a and para. [0192]), saturation (see para. [0183] and [0207]), and resistivity in a reservoir (see Fig.21 and para. [0207] to [0209]) with a multi-phase flow model (see Fig.33 and para.[0229]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Cope with those of Ortoleva, because Cope expressly teaches that “[b]y integrating all the software and databases, the groundwork is laid to allow the static and dynamic models to exist together in a continuum.” (See p.9, col.2, last paragraph).

11. Dependent claims 2-13 are rejected on the same grounds as independent claim 1.

12. In regards to claim 13, Examiner notes that it was old and well known in the art at the time the invention was made to use voltage measurement to determine resistivity. (See U.S. Patents cited below).

13. Claims 14-15 are rejected based on the same reasoning as claim 1. Claims 14-15 are process claims that recite limitations similar to those recited in claim 1.

Conclusion

14. The following prior art, made of record and not relied upon, is considered pertinent to applicant's disclosure.

15. Akbar, M. et al. “Classic Interpretation Problems: Evaluating Carbonates”. Oilfield Review. Jan. 1995. pp.38-57. (Teaches the use of Archie's law on p.49, and the use of a simple model to determine permeability on pp.55-56).

16. U.S. Patent 4,672,588 to Willen. (Teaches the use of Archie's Relationship in col.14, lines 15-50).

17. U.S. Patent 6,061,634 to Belani et al. (Teaches the creation of a model of reservoir fluid flow, saturation, and permeability. See abstract. Teaches the use of voltage measurement to determine resistivity. See col.5, lines 4-25.).
18. U.S. Patent 6,283,210 to Soliman et al. (Teaches the use of magnetic resonance imaging for determining flow and permeability. See col.3, line 65 to col.4, line 15).
19. U.S. Patent 6,405,796 to Meyer et al. (Teaches the use of Archie's Relationship and permeability in col.4, lines 1-13).
20. U.S. Patent 6,493,632 to Mollison et al. (Teaches the use of Archie's Relationship in col.1, lines 26-65. Also teaches that resistivity is measure using voltage measurements. See col.5, lines 18-23).
21. U.S. Patent 6,549,879 to Culcik et al. (Teaches the use of a 3D reservoir model for determining optimal well locations. See Abstract).
22. U.S. Patent 6,711,502 to Mollison et al. (Teaches the use of Archie's Relationship in col.1, lines 28-67. Also teaches that resistivity is measure using voltage measurements. See col.5, lines 18-23).
23. U.S. Patent 6,980,940 to Gulpinar et al. (Teaches modeling of a fluid reservoir, and "assimilating" field testing data. See Abstract and Figs. 9A-9B).

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is

Art Unit: 2123

(571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a bi-week, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached at (571) 272-3749.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:


USPTO
P.O. Box 1450
Alexandria, VA 22313-1450

or hand carried to:

USPTO
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon
Art Unit 2123
February 27, 2006


Paul L. Rodriguez 3/2/06
Primary Examiner
Art Unit 2125